

What is claimed is:

1. A method of preparing a z-filter media construction including steps of:
 - (a) providing a filter media combination comprising a fluted filter media sheet secured to a facing sheet of filter media with a first sealant strip therebetween against a first side of the facing sheet; and,
 - (b) forming a first coiled configuration by coiling the filter media combination with the facing sheet directed to the outside of the coil and with a second sealant strip, during coiling, positioned between the fluted filter media sheet and a second side of the facing sheet;
 - (i) at least one of the first sealant strip and second sealant strip comprising polyurethane sealant.
2. A method according to claim 1 wherein:
 - (a) the second sealant strip comprises polyurethane composition that increases in volume during cure.
3. A method according to any one of claims 1 and 2 wherein:
 - (a) the second sealant strip comprises polyurethane composition that increases in volume by at least 40%, during cure.
4. A method according to any one of claims 1-3 including a step of:
 - (a) positioning a housing seal on the first coiled configuration.
5. A method according to claim 4 wherein:
 - (a) the step of positioning a housing seal comprises positioning a framework on the filter media and a urethane housing seal on the framework.
6. A method according to claim 4 wherein:
 - (a) the step of positioning a housing seal comprises securing a foamed polyurethane seal to an outer surface of the filter media.

7. A method according to any one of claims 1-6 wherein:
 - (a) the step of forming a first coiled configuration comprises:
 - (i) coiling the filter media combination, with the second sealant strip positioned between the backside of the facing sheet and the fluted sheet, on a mandrel; and
 - (ii) removing a resulting coil from the mandrel to provide a coreless coil.
8. A method according to any one of claims 1-7 wherein:
 - (a) the step of forming a first coiled configuration comprises coiling to form a circular coil.
9. A method according to any one of claims 1-8 including a step of:
 - (a) distorting the first coiled configuration to a second coiled configuration before the second sealant strip is fully cured.
10. A method according to claim 9 wherein:
 - (a) the step of distorting comprises distorting the circular coil to an obround shape.
11. A method according to claim 10 wherein:
 - (a) said step of distorting comprises forming at least six interdigitized flutes along a center strip of the z-filter media construction, in the region of the second sealant strip.
12. A method according to claim 10 wherein:
 - (a) said step of distorting comprises distorting to an obround coiled shape having two, opposite, sides and two, opposite, rounded ends.
13. A method according to claim 9 wherein:
 - (a) the step of distorting comprises distorting such that the second sealant strip forms a central seal in the z-filter media construction.

14. A method according to claim 7 including a step of:
 - (a) positioning foamed polyurethane in a space inside of the coreless coil to prevent unfiltered flow therethrough.
15. A method according to claim 14 including:
 - (a) providing a foamed polyurethane housing seal gasket secured to the outer surface of the z-filter media construction.
16. A method according to any one of claims 1-15 wherein:
 - (a) the facing sheet is a non-corrugated sheet.
17. A method according to any one of claims 1-16 including a step of:
 - (a) applying the second sealant strip to the fluted sheet before coiling with:
 - (i) a selected amount of sealant applied a first distance from a nearest edge of the filter media combination at a first location of the filter media combination adjacent a lead edge of the strip;
 - (ii) a selected amount of sealant applied a second distance from the nearest edge of the filter media combination in a second location of the filter media combination following the first portion, the first distance being further than the second distance; and,
 - (iii) a selected amount of sealant applied a location of the filter media combination near a tail end and at a location further from a closest edge than the sealant on the second portion of the filter media combination.
18. A method according to any one of claims 1-17 wherein:
 - (a) said step of coiling includes guiding an extension of the filter media combination into a media catch slot of a winding hub and winding the hub to coil the filter media combination.

19. A method according to any one of claims 1-18 wherein:
 - (a) said step of providing a filter media combination includes:
 - (i) corrugating a first sheet of media and securing it to a facing sheet with the first sealant bead therebetween; the first sealant bead being applied to the first sheet of media before corrugation.
20. A method according to any one of claims 1-19 wherein:
 - (a) said step of providing a filter media combination includes:
 - (i) positioning the first sealant strip mid-web; and
 - (ii) slitting a resulting media construction through the first sealant strip to provide the filter media combination to be used in the coiling.
21. A method of preparing a z-filter media construction including steps of:
 - (a) providing strips of filter media combination each comprising a fluted filter media sheet secured to a facing sheet of filter media with a first sealant strip therebetween; and,
 - (b) stacking the strips of corrugated sheet/facing sheet with a second sealant strip applied therebetween;
 - (i) at least one of the first sealant strip and second sealant strip comprising a polyurethane sealant.
22. A z-filter media construction made according to one or more of claims 1-21.
23. A z-filter media construction comprising:
 - (a) a coiled media pack comprising a coiled media combination of fluted media secured to facing sheet;
 - (i) the media pack having first and second opposite flow faces and comprising a first set of inlet flutes and a second set of outlet flutes;
 - (A) the inlet flutes being open to passage of unfiltered air therein, at the first flow face and being closed to unfiltered air therefrom at the second flow face;

- (B) the outlet flutes being closed to passage of unfiltered air therein at the first flow face and open to passage of filtered air therefrom at the second flow face;
 - (C) the fluted sheet being secured to the facing sheet on at least one side of the facing sheet by a continuous strip of polyurethane foam sealant applied before the media sheet becomes coiled.
24. A method of preparing a z-filter media construction including steps of:
- (a) coiling a corrugated sheet/facing sheet strip on a hub;
 - (b) removing a resulting coil from the hub to provide a coreless coil; and,
 - (c) sealing a center of the coreless coil closed with a polyurethane that increases in volume by at least 40% during cure.
25. A z-filter media construction made according to the method of claim 24.
26. A method of preparing a z-filter media construction including steps of:
- (a) coiling a corrugated sheet/facing sheet strip on a hub;
 - (b) removing a resulting coil from the hub to provide a coreless coil; and,
 - (c) distorting the coreless coil to an obround shape by pressing on a side area of the coil comprising facing sheet.
27. An obround z-filter media construction made according to the process of claim 26.